

L10 1 S 1-HEPTANOL/CN  
L11 1 S ETHYL BUTYRATE/CN  
L12 1 S BENZALDEHYDE/CN  
L13 1 S HEPTALDEHYDE/CN  
L14 4 S L10-L13

*Search for  
the second set  
of compounds in  
Claim 1*

FILE 'CAPLUS, WPIDS, CABA, CROPB, CROPU' ENTERED AT 22:31:45 ON 16 FEB 2004

FILE 'REGISTRY' ENTERED AT 22:31:55 ON 16 FEB 2004

SET SMARTSELECT ON  
L15 SEL L14 1- CHEM : 45 TERMS  
SET SMARTSELECT OFF

FILE 'CAPLUS, WPIDS, CABA, CROPB, CROPU' ENTERED AT 22:31:56 ON 16 FEB 2004

L16 89629 S L15/BI  
L17 50663 S BEE OR BEES OR HONEYBEE OR HONEYBEES OR APIS OR APINAE OR BOM  
L18 91 S L16 AND L17  
L19 4 S L18 AND (MITE OR MITES OR VARROA OR ACARAPIS OR ACARI?)

=> d que

L10 1 SEA FILE=REGISTRY 1-HEPTANOL/CN  
L11 1 SEA FILE=REGISTRY ETHYL BUTYRATE/CN  
L12 1 SEA FILE=REGISTRY BENZALDEHYDE/CN  
L13 1 SEA FILE=REGISTRY HEPTALDEHYDE/CN  
L14 4 SEA FILE=REGISTRY (L10 OR L11 OR L12 OR L13)  
L15 SEL L14 1- CHEM : 45 TERMS  
L16 89629 SEA L15/BI  
L17 50663 SEA BEE OR BEES OR HONEYBEE OR HONEYBEES OR APIS OR APINAE OR  
BOMBINAE OR EUGLOSSINAE  
L18 91 SEA L16 AND L17  
L19 4 SEA L18 AND (MITE OR MITES OR VARROA OR ACARAPIS OR ACARI?)

*L19 ⇒ The first three hits are all the same*

*L19 - All  
Printed*

*L18 - all reviewed online  
none as good as L19*

L19 ANSWER 1 OF 4 CAPLUS COPYRIGHT 2004 ACS on STN  
 AN 2002:675818 CAPLUS  
 DN 137:181110  
 TI Compositions for control of parasitic mites of honey  
 bees and other hive pests  
 IN Erickson, Eric H.; Degrandi-Hoffman, Gloria; Becker, Christian G.;  
 Whitson, Roy S.; Deeby, Thomas A.  
 PA The United States of America, as Represented by Secretary of Agriculture,  
 USA  
 SO PCT Int. Appl., 42 pp.  
 CODEN: PIXXD2  
 DT Patent  
 LA English  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2002067914	A1	20020906	WO 2002-US5986	20020228
	W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
	RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
	US 2003044443	A1	20030306	US 2002-87161	20020227
	EP 1372623	A1	20040102	EP 2002-723256	20020228
	R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR			
PRAI	US 2001-272097P	P	20010228		
	US 2002-87161	A	20020227		
	WO 2002-US5986	W	20020228		

RE.CNT 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD  
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Compositions for control of parasitic mites of honey  
 bees and other hive pests  
 AB The present invention is directed to methods and compns. for use to  
 control parasitic mites of honey bees, particularly  
 Varroa mites. In one aspect, the invention is directed  
 to control of parasitic mites of honey bees wherein  
 the active ingredient is a miticidally effective amt. of a selected ketone  
 $\text{CH}_3(\text{CH}_2)_x\text{CO}(\text{CH}_2)_y\text{CH}_3$  ( $x = 0-5$ ,  $y = 0-2$ ), or 1-heptanol  
 , Et butyrate, benzaldehyde, heptaldehyde, or  
 d-limonene. In second aspect, the invention is directed to control of  
 parasitic mites of honey bees wherein the active  
 ingredient is an effective attractant amt. of 2-heptanone. The attracted  
 mites are then trapped or otherwise removed from the locus of the  
 bees. The present invention is also directed to methods and  
 compns. which include 2-heptanone to control hive invading pests of honey  
 bees.  
 ST honeybee Varroa acaricide insecticide  
 attractant hive pest heptanone  
 IT Achroia grisella  
 Aethina tumida  
 Galleria mellonella  
 Tropilaelaps  
 (compns. for control in honey bee hive of)  
 IT Varroa  
 (compns. for control of)  
 IT Acaricides  
 Honeybee  
 Insect attractants  
 Insecticides

Pesticide formulations  
(compsns. for control of parasitic **mites** of honey **bees**  
and other hive pests)

IT Pesticides  
(controlled-release; for control of parasitic **mites** of honey  
**bees** and other hive pests)

IT Attractants  
(**mite**; compsns. for control of parasitic **mites** of  
honey **bees** and other hive pests)

IT Pesticides  
(slow release; for control of parasitic **mites** of honey  
**bees** and other hive pests)

IT 67-64-1, Acetone, biological studies 100-52-7,  
**Benzaldehyde**, biological studies 105-54-4, **Ethyl**  
**butyrate** 106-35-4, 3-Heptanone 110-43-0, 2-Heptanone  
111-13-7, 2-Octanone 111-70-6, 1-Heptanol  
111-71-7, **Heptaldehyde** 123-19-3, 4-Heptanone  
591-78-6, 2-Hexanone 5989-27-5  
RL: BSU (Biological study, unclassified); BUU (Biological use,  
unclassified); BIOL (Biological study); USES (Uses)  
(compsns. for control of parasitic **mites** of honey **bees**  
and other hive pests, contg.)

IT 7534-94-3, Isobornyl methacrylate 42978-66-5, Tripropyleneglycol  
diacrylate  
RL: MOA (Modifier or additive use); USES (Uses)  
(in compsns. for control of parasitic **mites** of honey  
**bees** and other hive pests)

L19 ANSWER 2 OF 4 WPIDS COPYRIGHT 2004 THOMSON DERWENT on STN  
AN 2002-740718 [80] WPIDS  
DNC C2002-209695  
TI Method useful in the control of parasitic **mites** and hive  
invading pests of honey **bees**, comprises application of a  
specified ketone, **1-heptanol**, **ethyl**  
**butyrate**, **benzaldehyde**, **heptaldehyde** or  
d-limonene.

DC B05 C03  
IN BECKER, C G; DE-GRANDI-HOFFMAN, G; DEEBY, T A; ERICKSON, E H; WHITSON, R  
S; DEGRANDI-HOFFMAN, G  
PA (CERE-N) CEREXAGRI INC; (USDA) US SEC OF AGRIC; (BECK-I) BECKER C G;  
(DEGR-I) DE-GRANDI-HOFFMAN G; (DEEB-I) DEEBY T A; (ERIC-I) ERICKSON E H;  
(WHIT-I) WHITSON R S; (USSA) US SEC OF ARMY  
CYC 100  
PI WO 2002067914 A1 20020906 (200280)\* EN 42p  
RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ  
NL OA PT SD SE SL SZ TR TZ UG ZM ZW  
W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CZ DE DK DM  
DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ  
LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO  
RU SD SE SG SI SK SL TJ TM TN TR TT TZ UA UG UZ VN YU ZA ZM ZW  
US 2003044443 A1 20030306 (200320)  
EP 1372623 A1 20040102 (200409) EN  
R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT  
RO SE SI TR  
ADT WO 2002067914 A1 WO 2002-US5986 20020228; US 2003044443 A1 Provisional US  
2001-272097P 20010228, US 2002-87161 20020227; EP 1372623 A1 EP  
2002-723256 20020228, WO 2002-US5986 20020228  
FDT EP 1372623 A1 Based on WO 2002067914  
PRAI US 2002-272097 20020227; US 2001-272097P 20010228; US 2002-87161  
20020227  
TI Method useful in the control of parasitic **mites** and hive  
invading pests of honey **bees**, comprises application of a  
specified ketone, **1-heptanol**, **ethyl**  
**butyrate**, **benzaldehyde**, **heptaldehyde** or

d-limonene.

AB WO 200267914 A UPAB: 20021212  
NOVELTY - A method (M1) of controlling parasitic **mites** of honey **bees** comprises application of a specified ketone (I), **1-heptanol, ethyl butyrate, benzaldehyde, heptaldehyde** or d-limonene.

DETAILED DESCRIPTION - A method (M1) of controlling parasitic **mites** of honey **bees** comprises application of a ketone of formula (I), **1-heptanol, ethyl butyrate, benzaldehyde, heptaldehyde** or d-limonene.

y = 0; and  
x = 0 - 5; or  
y = 1; and  
x = 3; or  
y = 2; and  
x = 2.

INDEPENDENT CLAIMS are also included for:

(1) Miticidal composition for controlling parasitic **mites** of honey **bees** comprising a dispenser which provides (I), **1-heptanol, ethyl butyrate, benzaldehyde, heptaldehyde** or d-limonene;

(2) Attractant composition for attracting parasitic **mites** of honey **bees** comprising a dispenser providing 2-heptanone;

(3) Trapping system for controlling parasitic **mites** of honey **bees** comprising a trap and a dispenser containing 2-heptanone; and

(4) Composition for controlling hive invading pests of honey **bees** comprising a dispenser containing 2-heptanone.

ACTIVITY - Miticide.

**Mites** were placed in petri dishes containing 40 micro l of 2-heptanone in the lid. Within 2 hours the **mites** were all dead compared to no mortality in controls.

MECHANISM OF ACTION - None given in the source material.

USE - (M1) is useful for controlling parasitic **mites** of honey **bees**, especially **Varroa mites**; It either kills **mites**, incapacitate **mites** (such as disrupting neural or other physiological functions to prevent essential **mite** functions or reproduction), or renders **mites** impaired sufficiently to be trapped, drowned, isolated or otherwise removed from an area.

(I) is also useful for controlling hive invading pests, especially greater wax moth (*Galleria mellonella*), lesser wax moth, small hive beetle, ants or *Tropilaelaps* (all claimed).

Dwg.0/0

TT TT: METHOD USEFUL CONTROL PARASITIC MITE HIVE PEST HONEY  
**BEE COMPRISE APPLY SPECIFIED KETONE HEPTANOL ETHYL BUTYRATE BENZALDEHYDE LIMONENE.**

L19 ANSWER 3 OF 4 CROPU COPYRIGHT 2004 THOMSON DERWENT on STN

AN 2003-80724 CROPU C G I

TI Method useful in the control of parasitic **mites** and hive invading pests of honey **bees**, comprises application of a specified ketone, **1-heptanol, ethyl butyrate, benzaldehyde, heptaldehyde** or d-limonene.

IN Erickson E H; Degrandi-Hoffman G; Becker C G; Whitson R S; Deeby T A

PA US-Sec.Army; Cerexagri

LO King of Prussia, Pa., USA

PI WO 2002067914 A1 20020906

AI US 2001-272097P 20010228

US 2002-272097 20020227

WO 2002-US5986 20020228

DT Patent

LA English  
 OS WPI: 2002-740718  
 FA AB; LA; CT  
 TI Method useful in the control of parasitic **mites** and hive invading pests of honey **bees**, comprises application of a specified ketone, **1-heptanol**, **ethyl butyrate**, **benzaldehyde**, **heptaldehyde** or d-limonene.  
 AB A method of controlling parasitic **mites** of honey **bees** (*Apis mellifera*) is claimed, comprising application of a specified ketone (I: especially 2-heptanone (2H)), **1-heptanol**, **ethyl butyrate**, **benzaldehyde**, **heptaldehyde** or d-limonene. A typical formulation was a slow-release oil-gelled composition containing 10% 2H and 90% gelled mineral oil (Versagel C HP). In an example, **mites** (*Varroa jacobsoni*) were placed in petri dishes containing 40 ul 2H in the lid; fluvalinate (Apistan) was used as comparison. Within 2 hr, the **mites** were all dead, while no mortality was seen in controls. The composition had no ill effect on **bees** (composition of queen's court, oviposition). It is also claimed to be useful for controlling hive invading pests, especially greater wax moth (*Galleria mellonella*), lesser wax moth (*Achroia grisella*), small hive beetle (*Aethina tunida*), ants or *Tropilaelaps*.  
 ABEX In (I):  $y = 0$  and  $x = 0-5$ ; or  $y = 1$  and  $x = 3$ ; or  $y = 2$  and  $x = 2$ . Also claimed are: an **acaricidal** composition for controlling parasitic **mites** of honey **bees** comprising a dispenser which provides the active compound; an attractant composition for attracting parasitic **mites** of honey **bees** comprising a dispenser providing 2H; a trapping system for controlling parasitic **mites** of honey **bees** comprising a trap and a dispenser containing 2H; and a composition for controlling hive invading pests of honey **bees** comprising a dispenser containing 2H. The agent either kills **mites**, incapacitates them (such as disrupting neural or other physiological functions to prevent essential **mite** functions or reproduction), or renders them sufficiently impaired to be trapped, drowned, isolated or otherwise removed from an area. 2H also acts as an attractant for **Varroa mites**.  
 CT HEPTANONE-2 \*TR; VARROA \*TR; JACOBSONI \*TR; BEE \*TR  
 ; VARROIDAE \*TR; ACARINA \*TR; FLUVALINATE \*RC;  
 TAU-FLUVALINATE \*RC; APISTAN \*RC; HEPTANON2 \*RN; ACARICIDE \*FT  
 ; ACARICIDES \*FT; OIL \*FT; GEL \*FT; COMB.ADDITIVE \*FT;  
 VERSAGEL-C-HP \*FT; BIOASSAY \*FT; DOSAGE \*FT; IN-VITRO \*FT; FORMULATION \*FT; ALARM-PHEROMONES \*FT; INSECT-REPELLENTS \*FT; PLANT-GROWTH-INHIBITORS \*FT; TR \*FT  
 L19 ANSWER 4 OF 4 CROPU COPYRIGHT 2004 THOMSON DERWENT on STN  
 AN 1988-80276 CROPU Q I G  
 TI Laboratory Evaluation of Dimethoate Repellence to Honey **Bees**.  
 AU Danka R G; Collison C H  
 LO University Park, Pa., USA  
 SO J.Appl.Entomol. (104, No. 2, 211-14, 1987) 9 Ref.  
 AV USDA, ARS, Honey-Bee Breeding, Genetics and Physiology Laboratory, 1157 Ben Hur Rd., Baton Rouge, LA, 70820, U.S.A.  
 DT Journal  
 LA English  
 FA LA; CT  
 TI Laboratory Evaluation of Dimethoate Repellence to Honey **Bees**.  
 AB In a Y-tube olfactometer, honey **bees** (*Apis mellifera*) showed no avoidance when air was contaminated with dimethoate (Cygon 400) residues at 0.0056 mg a.i./sq.cm (recommended field rate on apples), or at 5, 10 or 15 times this rate. **Bees** were repelled by droplets of 10% Cygon (80 to 100 times recommended), and also by **benzaldehyde** at 0.00125 or 10%. Permethrin (Ambush 2E) at 0.011 and 0.0022 mg did not repel **bees**. In a spatial test,

bee mortality was 100% when they contacted dimethoate residues of 0.046 to 1.486 mg on filterpaper rings surrounded by feeder vials. Dimethoate residues of 0.006 and 0.012 mg caused no mortality nor decreased syrup consumption from treated feeders.

CT     **BEE** \*SE; **APIS** \*SE; MELLIFERA \*SE; APIDAE \*SE;  
HYMENOPTERA \*SE; CONTAMINATION \*FT; CONC. \*FT; AIR \*FT;  
INSECT-REPELLENT \*FT; AVOIDANCE \*FT; LAB.TEST \*FT  
[01] DIMETHOATE \*SE; CYGON \*SE; CONTACT \*FT; STOMACH-POISON \*FT;  
INTOXICATION \*FT; MORTALITY \*FT; ACTION-MECHANISM \*FT; INSECTICIDES  
\*FT; **ACARICIDES** \*FT; CONTACTS \*FT; SYSTEMICS \*FT;  
ANTICHOLINESTERASES \*FT; ORGANOPHOSPHORUS \*FT; DIMETHOAT \*RN; SE \*FT  
[02] **BENZALDEHYDE** \*SE; INSECT-ATTRACTANTS \*FT; SEX-PHEROMONES  
\*FT; BENZALDE \*RN; SE \*FT